What we claim is:

1. In a fiber cleaning system in which fibers are pneumatically conveyed into the system in an air stream commingled with foreign matter, fiber cleaning apparatus comprising:

(a) said air stream entering the apparatus in an air duct at conveying velocities and fiber-to-air mass ratios sufficient to prevent agglomeration of the individual fiber masses being pneumatically conveyed therein;

(b) a revolving cylinder with fang-type teeth on its periphery capable of holding said fiber on said teeth;

(c) said air duct terminating adjacent the surface of said revolving cylinder thus to deliver said fibrous material directly to the fanged teeth of said revolving cylinder;

(d) means to substantially completely separate the conveying air from the desirable fibrous material as the desirable fibrous material is substantially completely delivered onto the fang-type teeth of said revolving cylinder without allowing the individual masses of fiber to agglomerate;

(e) means adjacent the periphery of said revolving cylinder to cause said foreign matter to be separated from said fiber.

2. The improvement as defined in claim 1, wherein said means to separate the conveying air from the desirable fibrous material comprises a construction of said revolving cylinder wherein the air may pass between said fang-type teeth and flow through said revolving cylinder to a point in its rotation where the air may be exhausted from the revolving cylinder.

3. The improvement as defined in claim 2, wherein said construction of said revolving cylinder comprises spaced apart discs with fang-type teeth on their peripheries, said discs mounted on a common shaft spaced apart axially sufficiently to allow free air flow there between while preventing desirable fibrous material from flowing past the fang-type teeth.

4. The improvements as defined in claims 1, 2 or 3 in which said means adjacent the periphery of said revolving cylinder to cause said foreign matter to separate from said fibrous material comprises in part a fixed streamer plate whose leading edge faces against the direction of rotation of said revolving cylinder having a lower surface approximately tangent to and in close proximity to the upper surface of said revolving cylinder at said leading edge and an upper surface joining said lower surface in an acute angle to comb back and impale said fiber firmly onto said fang-type teeth of the revolving cylinder.

5. The improvements as defined in claims 1, 2, 3 or 4 in which said means adjacent the periphery of said revolving cylinder to

cause foreign matter to separate from said fibrous material comprises in part a fixed bar or bars with acute angle leading edges facing against the rotation of said revolving cylinder and in close proximity to the periphery thereof to cause the free ends of the tufts of fibrous material to whip over said acute angle leading edges to throw off said foreign matter as the fibrous material surfaces adjacent said revolving cylinder are impaled on said fang-type teeth.

6. The improvements as defined in claims 1, 2, 3, 4 or 5 in which said air stream that conveys the fibrous material into said fiber cleaning system also pneumatically conveys the fibers from said revolving cylinder.

7. The improvements as defined in claims 1, 2, 3, 4, 5 or 6 in which the surface of said revolving cylinder with fang-type teeth moves at a velocity as great or greater than the velocity of said air stream pneumatically conveying the said fiber masses within said fiber cleaning apparatus.

8. The improvement as defined in claim 1 wherein said means to separate the conveying air from the desirable fibrous material comprises a transfer cylinder that allows air flow there through, but is resistant to desirable fibrous material penetration inwardly of its periphery which runs in close proximity to said rotating cylinder with fang-type teeth, said close proximity sufficient to assure that said fang-type teeth carry

substantially all of the desirable fibrous material away from the point of closest proximity of said cylinders.

9. The improvement as defined in claim 8 wherein the said transfer cylinder rotates in the same angular direction as said cylinder with fang-type teeth at a surface speed that prevents agglomeration of said individual fiber masses that may contact the transfer cylinder.

10. The improvement as defined in claim 8 or 9 wherein said transfer cylinder has a cylindrical outer shell with openings sufficiently large to allow air passage there through but small enough to prevent desirable fibrous material from passing there through.

11. The improvement as defined in claim 8 or 9 in which said transfer cylinder comprises a plurality of discs mounted on a common shaft and spaced apart axially sufficiently to allow air to pass between adjacent discs while preventing said desirable fibrous material from passing there between.

12. The improvement as defined in claim 8 or 9 wherein said transfer cylinder comprises in part substantially radial bristles whose outer ends describe the outside diameter of the transfer cylinder, said bristles or groups of bristles spaced apart to allow air flow there between while said outer ends of said bristles prevent said desirable fibrous material from flowing radially inward when said transfer cylinder rotates at velocities

sufficient to prevent agglomeration of tufts of said fibrous material that may contact the transfer cylinder.

13. The improvement as defined in claim 8, 9, 10, 11 or 12 in which said means adjacent the periphery of said revolving cylinder with fang-type teeth to cause foreign matter to separate from said desirable fibrous material comprises in part a fixed streamer plate whose leading edge faces against the direction of rotation of said revolving cylinder with fang-type teeth, having a lower surface approximately tangent to and in close proximity to the upper surface of said revolving cylinder at said leading edge, and an upper surface joining said lower surface in an acute angle to comb back and impale said fibrous material firmly on to said fang-type teeth of the revolving cylinder.

14. The improvements as defined in claims 8, 9, 10, 11, 12 or 13 in which said means adjacent the periphery of said revolving cylinder with fang-type teeth to cause foreign matter to separate from said desirable fibrous material comprises in part a fixed bar or bars with acute angle leading edges facing against the rotation of said revolving cylinder with fang-type teeth and in close proximity to the periphery thereof to cause the free ends of the fibrous material to whip over said acute angle leading edges to throw off said foreign matter as the fibrous material surfaces adjacent said revolving cylinder with fang-type teeth are impaled on said fang-type teeth.

15. The improvement as defined in claims 8, 9, 10, 11, 12, 13 or 14 wherein said cylinder with fang-type teeth has a surface speed as fast or faster than the surface speed of said transfer cylinder and in turn the surface speed of said transfer cylinder is as fast or faster than the velocity of said air stream.

16. The improvements as defined in claims 8, 9, 10, 11, 12, 13, 14 or 15 that further include a two position air valve system that when set in the first position exhausts said conveying air that has passed through said transfer cylinder from said fiber cleaning system and when set in the second position directs said conveying air to aid in doffing said fibrous material from said revolving cylinder with fang-type teeth.

17. In a fiber cleaning system in which fibers are pneumatically conveyed into the system in an air stream commingled with foreign matter, the fiber cleaning method comprising:

(a) means to maintain said air stream moving at a velocity and with an air-to-fiber mass ratio sufficient to convey said fiber and commingled foreign matter in spaced apart relationship;

(b) a moving surface characterized in that when exposed to fibrous material with relative motion in one direction said surface will grasp and hold said fibrous material and when there is relative motion between the fibrous material and said moving surface in the opposite

direction the surface will release the fibrous material;

(c) means to direct said fibrous material and foreign matter onto said moving surface in spaced apart relationship and with relative motion between said surface and fibrous material that causes said surface to grasp and hold substantially all of said fibrous material while said air stream is concurrently and completely separated from said fibrous material.

18. The method as defined in claim 17 that further includes means positioned in close proximity to said moving surface, so as to pass said moving surface after said fibrous material and foreign matter have been directed onto said surface, said means in close proximity to said surface having relative motion to said surface in the direction to cause the fibrous material to be more firmly implanted onto said surface and to comb back the foreign matter from the fibrous material.

19. The methods as defined in claims 17 or 18 that are further defined in that said moving surface moves in a rotary motion such that after said spaced apart fibrous material and commingled foreign matter have been directed onto said surface, centrifugal force causes said foreign matter to pull away from said fibrous material thus to facilitate the separation of said fibrous material and foreign matter.

20. the methods as defined in claims 17, 18 or 19 further including stationary means located closely approximal to said moving surface after said fibrous material and commingled foreign matter have been directed onto said surface, said stationary means having forward edges over which said moving surface whips the said fibrous material and commingled foreign matter to strip away the foreign matter from the fibrous material being held onto said moving surface.

21. The methods as described in claims 17, 18, 19 or 20 which further include the method of doffing said fibrous material from said moving surface by means that cause relative motion between the fibrous material and said moving surface in the opposite direction from said relative motion between said moving surface and said fibrous material that causes the fibrous material to adhere to said moving surface thus to cause said fibrous material to be released from said moving surface.

22. The methods as described in claims 17, 18, 19, 20 or 21 in which said fiber cleaning system additionally includes a doffing means associated with a means upstream from said fiber cleaning system that delivers said fibers into said fiber cleaning system in an air stream commingled with foreign matter.

23. The method as described in claim 22 in which said means to direct said fibrous material and foreign matter onto said moving surface is interposed between said doffing means associated with

a means upstream from said fiber cleaning system and said moving surface.

24. The method as described in claim 22 in which said air stream that pneumatically conveys said fibers commingled with foreign matter is delivered through duct means from said doffing means associated with a means upstream from said fiber cleaning system to said moving surface at said velocity and air-to-fiber mass ratio to maintain said fibers and commingled foreign matter in spaced apart relationship.